





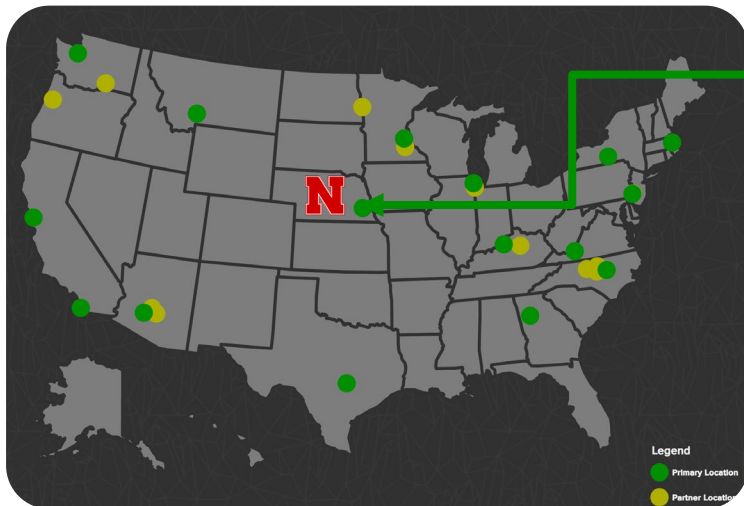


NEBRASKA NANOSCALE FACILITY: NNF

What are you doing now and how can a future infrastructure better reach out to underserved communities ?

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NNF
NCMN



Voelte-Keegan Nanoscience Research Center
@ University of Nebraska

NNCI annual conference: October, 2024

Outline

● What are you doing now ?

- * NNF team
- * NNF users

● How can a future infrastructure better reach out to underserved communities ?

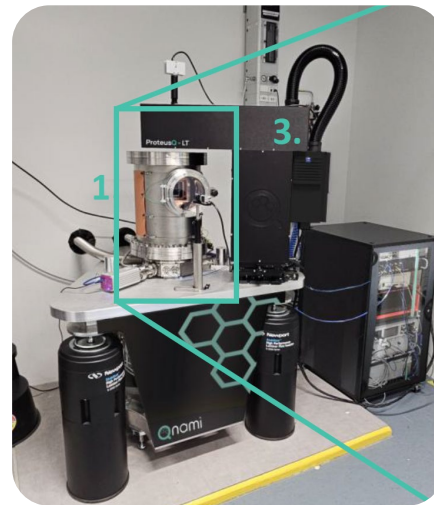
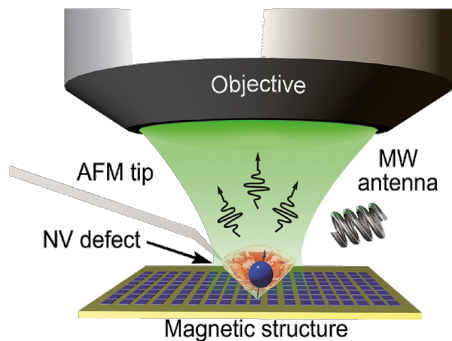
● Examples of sustainable NNCI-initiated activities in a post NNCI-era

● Strategies to continue support of selected NNCI-initiated activities w/o NNCI funding

What is the NNF team doing now ?

● Preparation of lab space for arriving new facilities

- * Small angle x-ray scattering system SAXS for non-traditional users
Anton Paar SAXSpoint 5.0 SAXS/WAXS/GISAXS
- * Nitrogen Vacancy (NV) - Color Center based SPM ProteusQLT



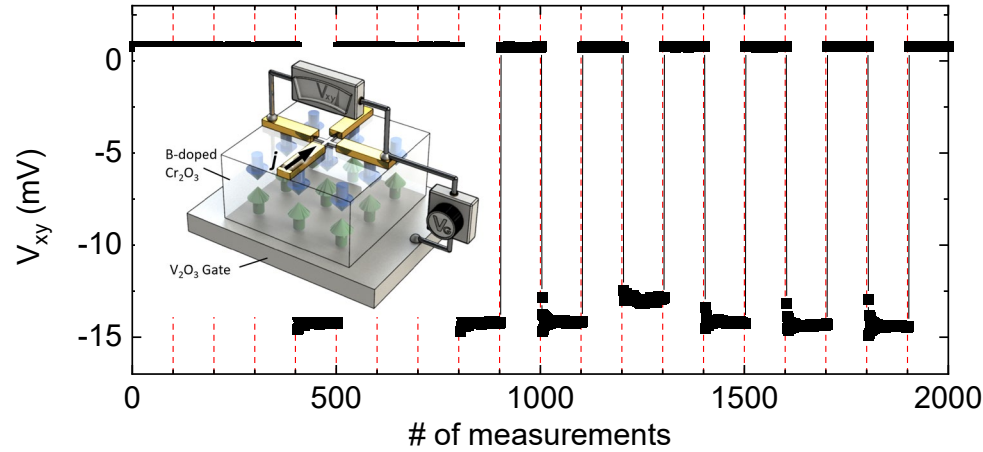
What is the NNF team doing now ?-continued

Other activities

- * Center reviews (NNF and NCMN) through external review panels initiated by UNL's Office of Research and Innovation
- * Major proposal development
 - Quantum Leap Challenges Institute (QLCI)
 - NSF Engine in collaboration with Iowa State (lead) ; **RuralSTAMINA: Ascending Rural communities through Sustainable, Transformative Advanced Manufacturing INnovations and Alliances**
 - NSF Engineering Research Center in collaboration with New Mexico, Delaware, Arkansas, MIT NeXFab: Next-Generation Sustainable CMOS+X Fab
 - NIST-DOC proposal titled: **“Advanced Organic and Semiconductor Substrates with Specialization in Biomedical Applications”** under leadership of American Semiconductor in collaboration with Utah, Boise, Montana
 - NSF Engineering Center **Laser-Assisted Manufacturing and Processes (LAMPS)** leadership UNL engineering
- * Strong E/O activities (more information under sustainable activities)

What are NNF users doing now ?

An academia research example



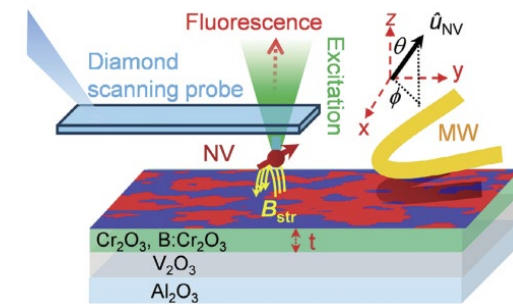
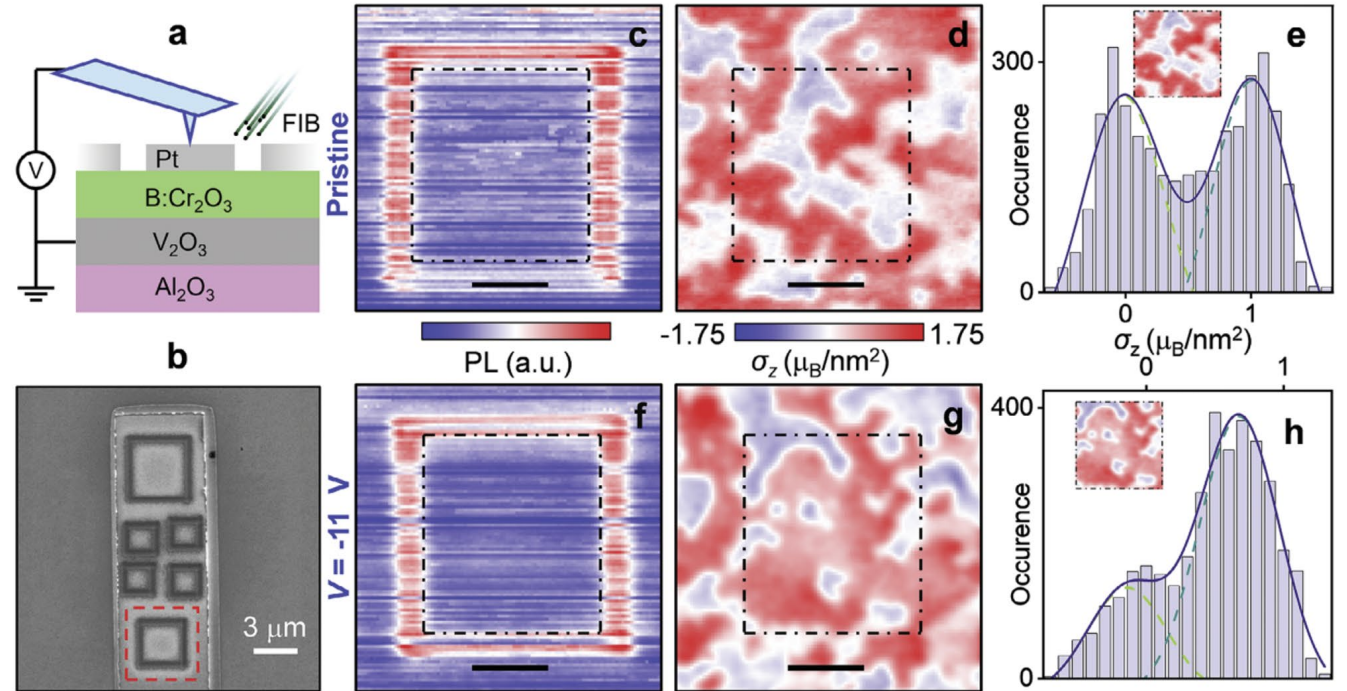
ADVANCED FUNCTIONAL MATERIALS

Research Article | [Open Access](#) | [CC](#) [i](#)

Imaging Local Effects of Voltage and Boron Doping on Spin Reversal in Antiferromagnetic Magnetolectric Cr₂O₃ Thin Films and Devices

Adam Erickson, Syed Qamar Abbas Shah, Ather Mahmood, Pratyush Buragohain, Ilja Fescenko, Alexei Gruverman, Christian Binek, Abdelghani Laraoui

First published: 02 August 2024 | <https://doi.org/10.1002/adfm.202408542>



How can a future infrastructure better reach out to underserved communities ?

- We will utilize our experience within the NSF EPSCoR RII-Track 1 center to reach out to the Native American population and tribal colleges



- Travel support for external users from minority serving institutions



Examples of sustainable activities

● We will continue to support internal and external users utilizing NCMN facilities

● The recent REU convocation at UNL is a testimony to our commitment to excellence in E/O.

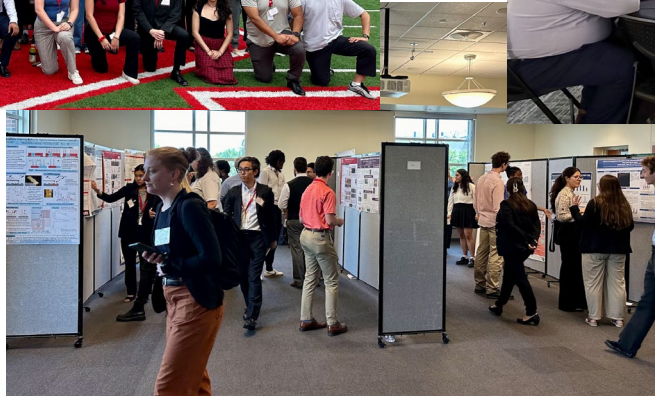
We will strive to continue to do great work in E/O with the help of



Jenna
Huttenmaier



Steven
Wignall



Strategies to support NNCI-initiated activities

- * The support which NCMN receives (currently through the Nebraska Research Initiative, the UNL Program of Excellence, and some fraction of F&A return) determines:
 - The user fees we have to request
 - The support through facility specialist we can provide
 - Facility maintenance/downtime of equipment
 - The ability keep the facilities up to date
- * Reduction of the number of E/O programs and reducing our reach
- * Leveraging synergy effects with other E/O activities on campus financed, e.g., by the NE EPSCoR office, colleges and departments (engineering days, math days, ...)

